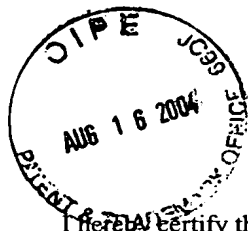


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John T. Pienkos, Reg. No. 42,997

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): David Charles Schwartz, *et al.*
Serial No.: 10/688,416
Filed: October 17, 2003
For: Micro-Channel Long Molecule Manipulation System
Docket No.: 960296.00129

INFORMATION DISCLOSURE STATEMENT

This paper is being presented for filing in the above case pursuant to Rules 97 and 98 of the Rules of Practice.

Four sets of Forms PTO/SB/08A "Information Disclosure Statement by Applicant" are attached. The first set of Forms PTO/SB/08A lists newly-cited references, and copies of the references are enclosed.

As for the remaining three sets of Forms PTO/SB/08A, these respectively list references that were cited during the prosecution of three patent applications of which the present Application claims the benefit, namely, U.S. patent application Nos. 09/962,802 (now U.S. Patent No. 6,610,256); 08/855,410 (now U.S. Patent No. 6,294,136); and 08/415,710 (now U.S. Patent No. 5,720,928). The Applicants respectfully submit that, pursuant to 37 CFR 1.98(d), no copies of the references listed on these Forms PTO/SB/08A need be submitted to the Patent Office.

No additional fees for filing this paper are believed to be due. However, the Commissioner is hereby authorized to charge any additional fees due or to credit any overpayment to deposit account no. 17-0055.

Respectfully submitted,

DAVID CHARLES SCHWARTZ, *et al.*

By:

John T. Pienkos

Reg. No. 42,997

Attorney for Applicant

Quarles & Brady LLP

411 E. Wisconsin Avenue

Milwaukee WI 53202-4497

(414) 277-5777

**Complete if Known**

(Use as many sheets as necessary)

Sheet	1	of	2
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Application Number	10/688,416
Filing Date	October 17, 2003
First Named Inventor	David Charles Schwartz
Art Unit	
Examiner Name	
Attorney Docket Number	960296.00129

U. S. PATENT DOCUMENTS

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FOREIGN PATENT DOCUMENTS

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Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T ⁶
		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)	MM-DD-YYYY			
		WO 94/18218	08-18-1994	Seq. Ltd.		
		WO 00/09757	02-24-2000	U.S. Genomics		
		PCT Int'l Search Report				

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		Application Number	10/688,416
		Filing Date	October 17, 2003
		First Named Inventor	David Charles Schwartz
		Art Unit	
		Examiner Name	
Sheet 2 of 2	Attorney Docket Number	960296.00129	

OTHER PRIOR ART—NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		Chih-Ming Ho, "Fluidics - The Link Between Micro and Nano Sciences and Technologies", Proceedings of the IEEE 14th Annual International Conference On Microelectro Mechanical Systems. MEMS 2001. Interlaken, Switzerland, Jan 21-25,	
		2001, IEEE International Micro Electro Mechanical Systems Conference, New York, NY: IEEE, US, vol. CONF. 14, (01-21-2001), pgs 375-384, XP010534628 ISBN: 0-7803-5998-4, pg 378-379.	
		Unger M A Et Al: "Monolithic Microfabricated Valves and Pumps by Multilayer Soft Lithography", Science, American Association For The Advancement Of Science, US, vol. 288, 04/07/2000, pgs. 113-116, XP002192277 ISSN: 0036-8075 Figure 1.	
		Stix, Gary; "Thinking Big-A Harvard Medical School dropout aims to usher in the personal-genomics ear," Innovations, Scientific American, June 2002, pgs. 30-31.	
		Stikeman, Alexandra, "Nanobiotech Makes The Diagnosis," Technology Review, May 2002, pgs. 61-66.	

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Prior art cited in U.S. Patent No. 6,610,256

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First Named Inventor	David Charles Schwartz
Art Unit	
Examiner Name	
Attorney Docket Number	960296.00129

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
		US- 4,473,452	Sep., 1984	Cantor et al.	
		US- 4,695,548	Sep., 1987	Cantor et al.	
		US- 4,737,251	Apr., 1988	Carle et al.	
		US- 4,767,700	Aug., 1988	Wallace	
		US- 4,870,004	Sep., 1989	Conroy et al.	
		US- 5,059,294	Oct., 1991	Lizardi	
		US- 5,079,169	Jan., 1992	Chu et al.	
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		US- 5,405,519	Apr., 1995	Schwartz	
		US- 5,599,664	Feb. 1997	Schwartz	
		US- 5,720,928	Feb., 1998	Schwaratz	422/186
		US- 5,985,549	Nov., 1999	Singer et al.	435/6
		US- 6,147,198	Nov., 2000	Schwartz	
		US- 6,150,089	Nov., 2000	Schwartz	
		US- 6,294,136	Sep., 2001	Schwartz	422/186
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FOREIGN PATENT DOCUMENTS

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		Country Code ³ Number ⁴ Kind Code ⁵ (if known)				
		FR 2605472	Apr., 1988	Alain Bouillet		
		WO 84/02001	May, 1984	Trustees of Columbia Univers		
		WO 87/01955	Sep., 1987	Washington University		

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		Art Unit	
		Examiner Name	
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OTHER PRIOR ART—NON PATENT LITERATURE DOCUMENTS			
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		Allison et al., 1992, "Immobilization of DNA for Scanning Probe Microscopy", Proc. Natl. Acad. Sci. USA 89: 10129-10133.	
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		Chattoraj et al., 1978, "DNA Coordination with Polyamines", J. Mol. Biol. 121: 327-337.	

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		Application Number	10/668,416		
		Filing Date	October 17, 2003		
		First Named Inventor	David Charles Schwartz		
		Group Art Unit			
		Examiner Name			
Sheet	3	of	7	Attorney Docket Number	960296.00129

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
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OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
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		Gurrieri et al., 1990, "Imaging of Kinked Configurations of DNA Molecules Undergoing Orthogonal Field Alternating Gel Electrophoresis by Fluorescence Microscopy", Biochemistry 2: 3396-3401.	
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		Link and Olson, 1991, "Physical Map of the <i>Saccharomyces cerevisiae</i> Genome at 110-Kilobase Resolution", Genetics 127: 681-698.	
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		Smith et al., 1992, "Direct Mechanical Measurements of the Elasticity of Single DNA Molecules by Using Magnetic Beads", Science 258:1122-1126.	
		Smith and Bendich, 1990, "Electrophoretic Charge Density and Persistence Length of DNA as Measured by Fluorescence Microscopy", Biopolymers 29:1167-1173.	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Application Number	10/688,416
				Filing Date	October 17, 2003
				First Named Inventor	David Charles Schwartz
				Group Art Unit	
				Examiner Name	
Sheet	7	of	7	Attorney Docket Number	960296.00129

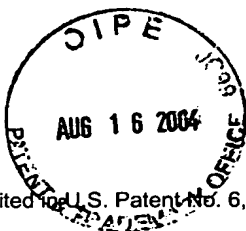
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		Southern, 1975, "Detection of Specific Sequences among DNA Fragments Separated by Gel Electrophoresis", J. Mol. Biol. 98:503-517.	
		Stallings et al., 1990, "Physical Mapping of Human Chromosomes by Repetitive Sequence Fingerprinting", Proc. Natl. Acad. Sci. USA 87:6218-6222.	
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		Williams, 1977, "Use of Polyisine for Adsorption of Nucleic Acids and Enzymes to Electron Microscope Specimen Films", Proc. Natl. Acad. Sci. USA 74:2311-2315.	
		Woolf et al., 1988, "Mapping Genomic Organization by Field Inversion and Two Dimensional Gel Electrophoresis", Nucl. Acids. Res. 16:3863-3875.	
		Yanagida et al., 1983, "Dynamic Behaviors of DNA Molecules in Solution..." Cold Spring Harbor Symp. Quant. Biol. 47:177-187.	
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		Zubay, 1988, Biochemistry (Macmillan Publishing Company, New York) pp. 918-919.	

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Prior Art Cited for U.S. Patent No. 6,294,136

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)	Complete if Known	
	Application Number	10/688,416
	Filing Date	October 17, 2003
	First Named Inventor	David Charles Schwartz
	Art Unit	
	Examiner Name	
Sheet 1 of 8	Attorney Docket Number	960296.00129

U. S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
		US- 4,473,452	Sep., 1984	Cantor et al.	204/180
		US- 4,695,548	Sep., 1987	Cantor et al.	435/179
		US- 4,737,251	Apr., 1988	Carle et al.	204/182
		US- 4,767,700	Aug., 1988	Wallace	435/6
		US- 4,870,004	Sep., 1989	Conroy et al.	435/6
		US- 5,059,294	Oct., 1991	Lizardi	204/458
		US- 5,079,169	Jan., 1992	Chu et al.	436/174
		US- 5,314,829	May, 1994	Coles	436/165
		US- 5,380,833	Jan., 1995	Urdea	536/22
		US- 5,720,928	Feb., 1998	Schwartz	422/186
		US- 5,985,549	Nov., 1999	Singer et al.	435/6
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		Country Code ³ Number ⁴ Kind Code ⁵ (if known)				
		FR 2605472	Apr., 1988	Alain Bouillet		
		WO 84/02001	May, 1984	Trustees of Columbia Univers		
		WO 87/01955	Sep., 1987	Washington University		

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		Art Unit			
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Sheet	2	of	8	Attorney Docket Number	960296.00129

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		Allison et al., 1992, "Immobilization of DNA for Scanning Probe Microscopy", Proc. Natl. Acad. Sci. USA 89: 10129-10133.	
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		Application Number	10/668,416
		Filing Date	October 17, 2003
		First Named Inventor	David Charles Schwartz
		Group Art Unit	
		Examiner Name	
Sheet	3	of	8
		Attorney Docket Number	960296.00129

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		Chumakov et al., 1992, "Continuum of Overlapping Clones Spanning the Entire Human Chromosome 21q", Nature 359: 380-387.	
		Church and Gilbert, 1984, "Genomic Sequencing", Proc. Natl. Acad. Sci. USA 81: 1991-1995.	
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		Guo et al., 1993, "Sizing of Large DNA Molecules by Hook Formation in a Loose Matrix", J. Biomol. Struct. and Dynam. 11: 1-10.	

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Sheet	4	of	8	Attorney Docket Number	960296.00129

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		Guo et al., 1992, "Sizing Single DNA Molecules", Nature 359: 783-784.	
		Gurrieri et al., 1990, "Imaging of Kinked Configurations of DNA Molecules Undergoing Orthogonal Field Alternating Gel Electrophoresis by Fluorescence Microscopy", Biochemistry 29: 3396-3401.	
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		Lawrence et al., Mapping In Situ: Presence and Orientation of Two Closely Integrated Copies of EBV in a Lymphoma Line", Cell 52: 51-61.	
		Lichter et al., 1990, "High-Resolution Mapping of Human Chromosome 11 by in Situ Hybridization with Cosmid Clones", Science 247: 64-69.	

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		Link and Olson, 1991, "Physical Map of the Saccharomyces cerevisiae Genome at 110-Kilobase Resolution", Genetics 127: 681-698.	
		Lodish et al., 1995, Molecular Cell Biology, W.H. Freeman, NY, p. 345.	
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		Perkins et al., 1994, "Direct Observation of Tube-like Motion of a Single Polymer Chain", Science 264: 819-822.	

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		Poddar and Maniloff, 1986, "Chromosome Analysis by Two-Dimensional Fingerprinting", Gene 49: 93-102.	
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		Stallings et al., 1990, "Physical Mapping of Human Chromosomes by Repetitive Sequence Fingerprinting", Proc. Natl. Acad. Sci. USA 87: 6218-6222.	
		Stellwagen, 1988, "Effect of Pulsed and Reversing Electric Fields on the Orientation of Linear and Supercoiled DNA Molecules in Agarose Gels", Biochemistry 27: 6417-6424.	
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		Woolf et al., 1988, "Mapping Genomic Organization by Field Inversion and Two Dimensional Gel Electrophoresis", Nucl. Acids Res. 16: 3863-3875.	
		Yanagida et al., 1983, "Dynamic Behaviors of DNA Molecules in Solution..." Cold Spring Harbor Symp. Quant. Biol. 47: 177-187.	
		Zenhausen et al., 1992, "Imaging of DNA by Scanning Force Microscopy", J. Struct. Biol. 108: 69-73.	
		Zubay, 1988, Biochemistry (Macmillan Publishing Company, New York) pp. 918-919.	

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Application Number	10/688,416
Filing Date	October 17, 2003
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Art Unit	
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		FR 2605472	Apr., 1988	Alain Bouillet		
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		Chattoraj et al., "DNA Condensation with Polyamines", J. Mol. Biol. 121, (1978), pp.327-337.	
		Ohi et al., "Mapping of Mitochondrial 4S RNA Genes... by Electron Microscopy", J. Mol. Biol. 212, (1978), pp 299-310.	
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		Filing Date	October 17, 2003		
		First Named Inventor	David Charles Schwartz		
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				Filing Date	October 17, 2003
				First Named Inventor	David Charles Schwartz
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Sheet	4	of	9	Attorney Docket Number	960296.00129

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		Barlow et al., 1987, "Genetics by gel electrophoresis: the impact of pulsed field gel electrophoresis on mammalian genetics", Trends in Genetics 3: 167-177.	
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		Church and Gilbert, 1984, "Genomic sequencing", Proc. Natl. Acad. Sci. USA 81: 1991.	

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				First Named Inventor	David Charles Schwartz
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Sheet	6	of	9	Attorney Docket Number	960296.00129

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		Romling et al., 1989, "A physical genome map of Pseudomonas aeruginosa", EMBO J. 8(13): 4081-4089.	
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		Poddar and Maniloff, 1986, "Chromosome analysis by two-dimensional fingerprinting", Gene 49: 93-102.	
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		Roemling et al., "A physical genome map of Pseudomonas aeruginosa", The EMBO Journal, Vol. 8, No. 13 (1989), pp. 4081-4089.		

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